

Notice of Allowability

Application No.

10/614,927

Examiner

Christopher R. Magee

Applicant(s)

HORNG ET AL.

Art Unit

2653

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed 12/13/2004.
2. ☒ The allowed claim(s) is/are 8-15.
3. ☒ The drawings filed on 08 July 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

DETAILED ACTION

Response to Amendment

1. The reply filed 12/13/2004 was applied to the following effect: All relevant objections and rejections are withdrawn as being satisfied.

Reasons for Allowance

2. Claims 8-15 are allowed.

The following is an examiner's statement of reasons for allowance:

- **Claim 8** specifies a magnetic read head which requires:

"a first layer of aluminum oxide, having a thickness between about 40 and 60 Angstroms, a first layer of an insulating material having a dielectric breakdown voltage that is at least 5 times that of aluminum oxide, whereby said first aluminum oxide and high voltage breakdown layers together constitute a lower dielectric layer whose total thickness is less than about 150 Angstroms; on said free layer, having a thickness between about 40 and 60 Angstroms, a second layer of an insulating material having a dielectric breakdown voltage that is at least 5 times that of aluminum oxide; on the second high voltage breakdown layer, a second layer of aluminum oxide having a thickness between about 80 and 120 Angstroms, thereby forming, together with said second high breakdown layer, an upper dielectric layer whose thickness is between about 140 and 160 Angstroms; and on the upper dielectric layer, an upper magnetic shield layer, whereby the magnetic read head having a minimum separation between its upper and lower magnetic shields that is less than 700 Angstroms"

Hornig '418 does not exemplify the first layer of aluminum oxide, having a thickness between about 40 and 60 Angstroms, a first layer of an insulating material having a dielectric breakdown voltage that is at least 5 times that of aluminum oxide, whereby said first aluminum oxide and high voltage breakdown layers together constitute a lower dielectric layer whose total thickness is less than about 150 Angstroms; on said free layer, having a thickness between about 40 and 60 Angstroms, a second layer of an insulating material having a dielectric breakdown voltage that is at least 5 times that of aluminum oxide; on the second high voltage breakdown

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layer, a second layer of aluminum oxide having a thickness between about 80 and 120 Angstroms, thereby forming, together with said second high breakdown layer, an upper dielectric layer whose thickness is between about 140 and 160 Angstroms; and on the upper dielectric layer, an upper magnetic shield layer, whereby the magnetic read head having a minimum separation between its upper and lower magnetic shields that is less than 700 Angstroms as claimed in the present invention.

Yang '757 shows dielectric gap layers 304 and 305 can be formed by depositing dielectric material on an underlying layer (i.e., on top of layer 303 or on top of a layer of the sensor 310). Yang '757 does not set forth the dimensions for the dielectric gap layers.

These features, in combination with other features of claim 8, are not anticipated by, nor made obvious over, the prior art of record of Horng et al. (US 6,466,418) and/or Yang et al. (US 6,452,757).

- **Claims 10 and 13** specify a magnetic read head which requires:

“a pair of parallel first trenches that are separated by a first distance and that extend part way through the free layer” and “parallel to the first trenches, a pair of second trenches, and separated from each other by a second distance that is greater than said first distance, and extending downwards into said manganese-platinum layer, and filled with material suitable for use as conductive leads.”

These features, in combination with other features of claims 10 and 13, are not anticipated by, nor made obvious over, the prior art of record of Horng et al. (US 6,466,418), Yang et al. (US 6,452,757) and Mino et al. (US 5,997,698).

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3. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion


4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher R. Magee whose telephone number is (571) 272-7592. The examiner can normally be reached on M-F, 8: 00 am-5: 30 pm.

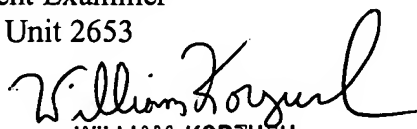
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

3/21/2005

CRM


Christopher R. Magee
Patent Examiner
Art Unit 2653


WILLIAM KORZUCH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600